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Global production

A Guide to measuring global production: an overview

Note prepared by the Task Force

Summary

The document is an extract from the draft "Guide to measuring global production", providing background information on the work of the Task Force, overview of the content of the Guide and summary of the main findings.

The Guide was developed by a Task Force to assist national accounts and balance of payments compilers with recording global production related activities in their accounts. The Task Force is chaired by Ireland and the guide has been edited by the Netherlands. The CES Bureau reviewed the full text of the Guide in January 2014, and decided to submit the Guide to all members of the Conference for electronic consultation.

The Guide will be submitted to the 2014 plenary session of the Conference of European Statisticians for information. It is planned to be finalised within one year in view of presenting it to the 2015 plenary session of the Conference for endorsement.

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I. Introduction

A. Background

1. This section provides the information of the Chapter 1 of the "Guide to measuring global production". In recent years significant steps have been taken to improve the international accounting standards when it comes to recording the transactions of enterprises participating in global production in the national accounts and balance of payments statistics. Examples are the harmonization of the 2008 System of National Accounts (SNA) and the Balance of Payments and International Investment Position Manual, 6th edition (BPM6), the recording of imports and exports on a strict change of ownership basis and the guidance given on the treatment of merchanting.

2. At the same time these changes also highlight the fact that capturing the activities of global production is a challenging aspect of these macroeconomic statistics. The transfer of ownership principle brings to the surface measurement issues that were previously concealed when compiling the accounts according to the old guidelines. The new standards are brought in line with several aspects of globalisation but also bring to bear several measurement challenges. These measurement challenges triggered several new conceptual issues and measurement related questions which are addressed in this interim version of the "Guide to measuring global production" (Global Production Guide or Guide in short). The purpose of the Guide is to support the implementation of the updated international standards and thereby enhancing international comparability.

3. Global production has evolved and now encompasses a broad range of business arrangements and organizational forms. Today, multinational enterprises (MNEs) account for a large share of international trade between countries. National Statistical Institutes (NSIs) need to keep track of the changing forms of global production and their effects on international trade relationships. It is important to identify best practices developed by countries, and agree internationally on the practical guidelines needed in order to foster international comparability.

4. In 2007, the Conference of European Statisticians (CES) established an Expert Group on the Impact of Globalization on National Accounts. By the end of 2011 the findings of this expert group were published in a statistical guide called "The Impact of Globalization on National Accounts".

5. In the course of drafting the chapters on "Goods sent abroad for processing" (chapter 5), "Merchanting" (chapter 6) "International transactions in intellectual property products" (chapter 7), and "Measurement issues associated with administrative trade data and globalization" (chapter 9), quite some attention was paid to the phenomenon of global manufacturing. At a late stage in the drafting process it was decided that the issue of global manufacturing deserved a chapter (8) on its own. Although in a short period of time many aspects of global manufacturing were discussed and presented in this chapter, some important issues were not sufficiently dealt with and needed further attention.

6. The CES consultation of the guide "The Impact of Globalization on National Accounts" (hereafter Globalization Guide) identified conceptual and practical aspects of global manufacturing arrangements in relation to the implementation of the new global standards 2008 SNA and BPM6 as a major priority for the future research agenda. In June 2011, the CES approved the guide including the proposed future work. Against this background the CES Bureau asked Statistics Netherlands to make an in-depth review of global manufacturing.

7. The subsequent consultation between the CES Bureau and the UNECE Steering Group on National Accounts, stressed the importance of the issues raised in the in-depth review and the need to establish a Task Force on Global Production to elaborate on the conceptual and measurement issues related to global manufacturing. The Steering Group also pointed out that rather than global manufacturing the research should focus on global production arrangements more generally to recognise the importance of the production of services and transactions in intellectual property products. Furthermore, United Nations Statistics Division (UNSD) and Organisation for Economic Co-operation and Development (OECD) highlighted the support of the Inter Secretariat Working Group on National Accounts (ISWGNA) for further work on global production arrangements as part of the global effort to develop implementation guidance for the 2008 SNA.

8. The objectives of the Task Force are twofold. The first goal was to develop guidance on a number of unresolved conceptual issues arising from 2008 SNA and BPM6 in relation to global production. The second goal was to develop further guidance on implementation aspects. In doing so, the Task Force studied the existing practices of countries in relation to various types of global production arrangements.

9. Examples of conceptual issues include the classification of so-called factoryless producers (FGPs) and other units active inside global production chains, and the identification of ownership of assets, including intellectual property products (IPPs) in global production chains and MNEs.

10. Examples of practical issues include providing guidance on the measurement of IPPs inside global production chains, guidance on recording imports and exports on a transaction basis including services, prorating the activities of multiterritory enterprises, quasi-transit trade and merchanting of services.

11. The following countries and international organizations participated in the Task Force: Canada, Finland, Ireland, Israel, Italy, Mexico, Netherlands, Norway, Sweden, United States, Eurostat, International Monetary Fund (IMF), OECD, United Nations Economic Commission for Europe (UNECE), UNSD and the World Trade Organisation (WTO). The Task Force was chaired by Ireland and the secretariat was provided by UNECE.

12. The work of the Task Force related to that of several other expert groups. It was already mentioned that this Task Force followed up on the work of the UNECE-led expert group on the Impact of Globalization on National Accounts. In addition, the Task Force cooperated closely with the Eurostat task force on Goods Sent Abroad for Processing. Chapter 5 benefits substantially from experiences of the member countries of the European Union (EU) as collected in the course of the Eurostat task force's work. Further, in this Guide reference is made to the report of the European Central Bank (ECB)/Eurostat/OECD Task Force on Head Offices, Holding Companies and Special Purpose Entities.

13. The findings of the Task Force are presented in this interim version of the "Guide to measuring global production". The Guide should be seen as a logical extension of "The Impact of Globalisation on National Accounts" (the Globalisation Guide). A final version of the Guide is expected by the end of 2014, after finalisation of the consultation process.

14. The set-up of the Global Production Guide is presented in the next part of this section. The main features of global production are discussed after that.

B. Structure of the Guide

15. The purpose of the Guide is to help the compilers of national accounts and balance of payments statistics understand the impact of global production on the related statistics. The Guide aims to provide:

(a) Clarity on several unresolved conceptual issues related to global production;

(b) Support on the measurement aspects of global production.

16. It draws as much as possible on national experiences. These country experiences are highlighted in the various country case studies presented throughout the Guide. Chapters 2, 3 and 4 deal with conceptual issues while the subsequent chapters focus more on the measurement related challenges.

17. A typology of global production arrangements is presented in Chapter 2. This typology can be helpful in identifying how much explicit coordination takes place, which can be an indication of how much control (and the associated risk) a lead enterprise has over the production process. This information is required for national accountants and balance of payments compilers to understand the nature of transactions taking place inside global value chains.

18. The principles of economic ownership are discussed in chapter 3. One specific issue dealt with in this chapter is how to best approximate the international transactions occurring inside an MNE. This is particularly relevant given that ownership relations may imply that affiliated companies do not always act autonomously.

19. Chapter 4 of the Guide extends the discussions on economic ownership to the ownership of intellectual property products (IPPs) and related transactions inside global value chains and MNEs. This chapter considers factors to establish guidance on economic ownership of IPPs and related transactions within various global production arrangements with the help of a decision tree.

20. Chapter 5 of the Guide brings together the measurement challenges of a selected number of global production arrangements: goods sent abroad for processing, merchanting and factoryless goods production. The chapter systematically reviews the data items needed to account for all aspects of these three global production arrangements: production and international trade flows. It also reviews all possible data sources that may support their recording. Furthermore, Chapter 5 provides guidance on how to distinguish FGPs from agents who merely engage in merchanting.

21. In recent years, several NSIs established so-called large and complex enterprises units and their experiences with observing and measuring global production are presented in Chapter 6. Based on the responses of a survey obtained from ten NSIs, the similarities and differences in the operation of these large and complex cases units are examined. These large and complex cases units play a crucial role in dealing with some of the most complex aspects of global production.

22. An area of economic analysis, closely related to global production, is the measurement of global value chains and the value added content of international trade. The discussion on trade in valued added is presented in Chapter 7 of the Guide. This chapter also discusses issues related to input-output tabulations and related modelling.

23. The issue of multiterritory enterprises is introduced in chapter 8. Based on a range of real life examples, this chapter provides practical guidance on how to assign the economic activities of multiterritory enterprises, and similar kinds of enterprises, to individual economic territories.

24. Chapter 9 of the Guide discusses statistical measurement issues associated with so-called quasi-transit trade and similar phenomena. Quasi-transit trade occurs when goods enter an economy and are declared as imports for customs purposes at values that differ from those that are declared when the goods leave the same economy. Quasi-transit trade may lead to import values obtained from customs records which differ from the actual transaction value.

25. In chapter 10 of the Guide the notion of merchanting (of goods) is extended to the domain of services and investigates the role of arrangers or intermediaries of international service transactions. This chapter follows up on previous, but rather brief, discussions in BPM6, Manual on Statistics of International Trade in Services (MSITS) 2010 and the Globalisation Guide. The conclusions in this chapter are tentative as the obtained evidence on the international services arrangers is still rather limited; however, a number of areas for further research are addressed in the chapter.

26. Each chapter of the Guide ends up with concrete recommendations in relation to the reviewed aspect of global production. The main conclusions and recommendations for future research identified in the Guide are summarised in Chapter 11 of the Guide, provided as section II to this paper.

C. Global production: an introduction

27. Globalization has created new opportunities and competitive challenges forcing producers to seek more efficient ways to make their products. It has become increasingly common for producers seeking more efficient means of production to divide the traditional vertically integrated production model into stages or tasks (known as fragments), which allows them to outsource part of their production process. When the resulting production arrangement is interlinked across different countries the measurement challenges facing national economic statistics programs increase dramatically.

28. Many economic forces are driving the fragmentation of production to specialized establishments both foreign and domestic. Improvements in information technology have allowed firms to relocate production to new and often distant locations. International cost differences, such as lower relative wage costs and lower trade and transport costs, improved logistics, differences in taxation, and improved intellectual property rights protection and contract enforcement have facilitated the use of global supply chains and global value chains.[1]

29. The remaining sections of this chapter focus on the concepts of global supply chains, global value chains, and global production chains and review how enterprises organize their production arrangements. This discussion is logically continued in the presentation of the typology of global production arrangements in Chapter 2 of the Guide.

[1] U.S. International Trade Commission "Economic Effects of U.S. Import Restraints, Special Topic: Global Supply Chains," August 2011.

D. Global supply, value and production chains

30. The terms global supply chain, global value chain, and global production chain are used when discussing globalization and the fragmenting of production across countries. Sometimes they are used interchangeably but they are not exactly the same concepts. This section discusses these concepts.

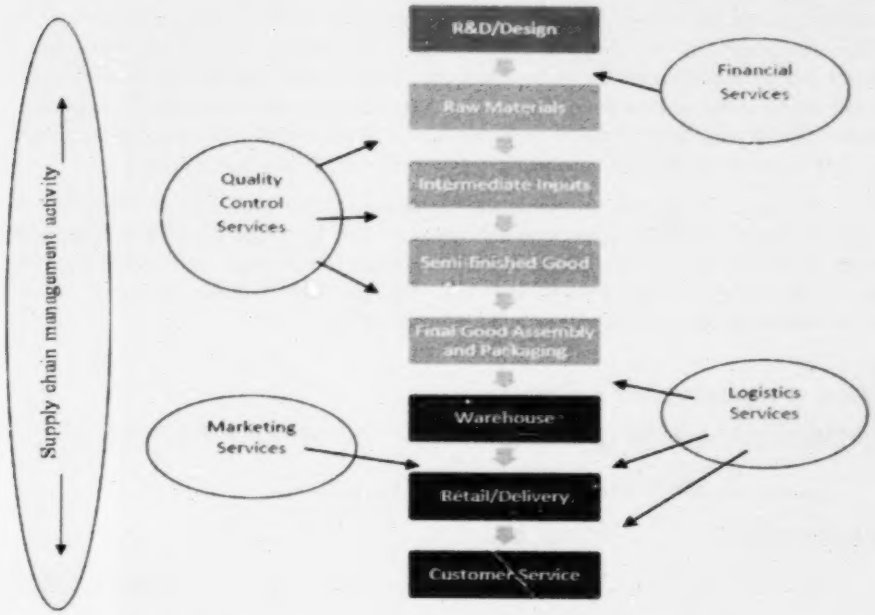
31. A supply chain is a system of organization, technology, activities, information, and resources involved in moving a good or service from supplier to customer. A supply chain can be within an enterprise, between enterprises in a local economy, or among a group of countries. The supply chain is a network where the activities involved can be grouped using the traditional broad stages of production from upstream research and development (R&D) and design, through manufacturing, to downstream logistics, marketing, and sales. The complexity of the supply chain and the business relationship between the various stages can vary by industry and by enterprise. A global supply chain consists of a worldwide network of these activities.

32. Figure 1 provides a simple illustration of fragmented production. It shows a schematic overview of the different stages in the production process of a good, from its design, processing of raw materials up to the final stages related to retail and consumer service. Supply chain management may cover the whole chain as reflected in the figure or specific parts of it. Similarly, some stages of the chain may be controlled by a parent company whose affiliates are responsible for certain other stages in the supply chain.

33. In the R&D and design stage an intangible asset is created that is later used as an input in making the good. The R&D and design can be used by the same enterprise to produce the good on its own account or can be provided to a supplier that produces the good.

34. Supply management may consist of several specific functions such as quality control, marketing, logistics and financial services, which are highlighted in Figure 1. Although this figure only shows financial services being provided at the R&D/design stage, in reality financial services can be provided at several stages in the supply chain. For example, leasing and consumer credits can be provided at the retail/delivery stage.

Figure 1.
Illustration of product fragmentation



Source: U.S. International Trade Commission compilation

35. A value chain refers to the value added activities required to bring a good or service from its conception, design, production, marketing, distribution and support to final customers.[2] It is the value added to the good or service at each stage of the network. Similar to the supply chain, the complexity of the value chain and the business relationship between the various stages can vary by industry and by enterprise. A value chain can be between enterprises in a local economy or span enterprises across a group of countries.

36. One may conclude that global value chains are particularly the object of analysis in the context of global production. The proper identification of value added in each step of the chain is fundamental to national accounting, particularly when the chain overlaps several countries. Similarly, the concept of global value chain corresponds closely to the analysis of trade in value added as presented in Chapter 7.

37. A production chain refers to linkages within or among a group of enterprises for producing specific goods or services. It represents how lead enterprises arrange their particular network of suppliers to produce a given good or service. The lead enterprise exerts certain control over the production process; its level depends on the kind of global production arrangement being followed. Control may relate to access to key resources and managing key activities, such as product design, international brands, and access to final

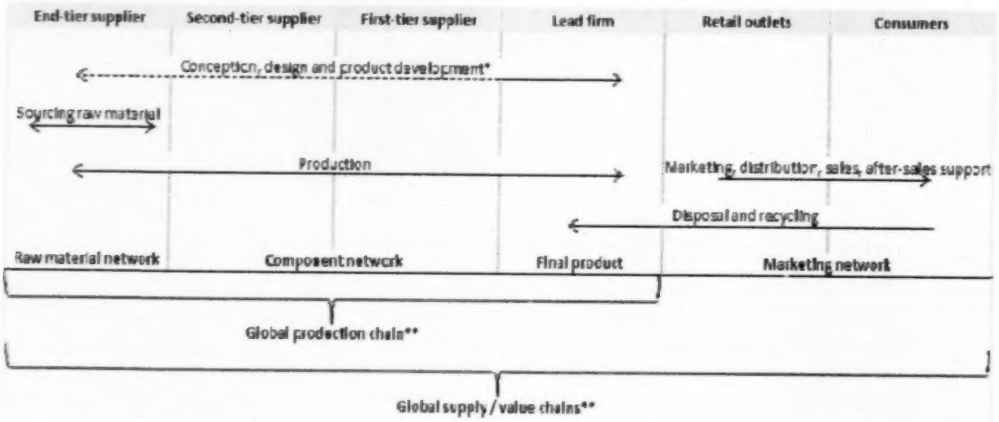
[2] Asian-Pacific Economic Cooperation (APEC) Policy Support Unit, issues paper no.1 "Concepts and Trends in Global Supply, Global Value and Global Production Chains" May 2012

customers.[3] A production chain becomes global when the linkages fragment across countries.

38. Figure 2 illustrates the network structure of global supply chains, global value chains, and global production chains. The structure of global supply chains and global value chains are similar. However, the focus of global supply chains is the movement of goods and services through the various stages of the network, whereas, the focus of global value chains is on the creation of value in the various places (or countries) in the network. Global production chains focus on the production of goods and services and typically end at the point after the goods and services have been produced for the lead enterprise.

39. Figure 2 is organized to show the interaction of the lead firm or enterprise, the suppliers, the distribution outlets, and the consumer. The lead firm, the principal, normally exerts some amount of control and contributes market knowledge, intellectual property, system integration and cost management skills. The lead firm's brand name usually reflects its reputation for quality, innovation, and customer service.

Figure 2.
Global value/supply/production chains



Source: Asia-Pacific Economic Cooperation (APEC) Policy Support Unit, issues paper no.1 "Concepts and Trends in Global Supply, Global Value and Global Production Chains"

Notes on Figure 2:

* Traditionally, conception, design and product development are controlled by the lead firm; nowadays, some of these activities are outsourced to other firms.

**The players in global production/supply/value chain include domestic and foreign firms.

40. Multiple levels of suppliers may be needed by the lead firm for producing its specific goods or services. The lead firm works directly with the first-tier supplier. The first-tier supplier generally provides design and innovation capabilities. The second-tier supplier is an entity that supplies directly to the first-tier supplier without supplying directly to the lead firm. Raw materials are generally supplied by the end-tier supplier.

41. Figure 2 also highlights that global production arrangements constitute much more than simply a sequence of interlinked markets. The information streams required to connect principals (the lead firms coordinating the tasks) and suppliers is vital. Technology,

[3] APEC, see footnote 2.

knowledge management and the exchange of intellectual property play a vital role in global production chains.

42. As illustrated in the above presented figures both the supply chain and value chain capture the stage of distribution and marketing, while the production chain ends just before this stage. Many of the global production arrangements discussed in this Guide are also related to distribution activities. This is one of reasons why the scope of the task force's work was extended from global manufacturing to cover the broader set of activities associated with global production.

43. One particular case of global production discussed in detail in this Guide is merchanting. Under this arrangement an entity buys products from a supplier abroad and resells it to a customer abroad, without further transformation of the product. In Chapter 3 of the Guide it is explained that Merchanting can exist in close connection to other forms of global production. In other words, generally speaking the scope of the Guide corresponds better with that of global supply and value chains than to production chains only.

E. Organization of production arrangements

44. The increased fragmentation of production and trade through the use of supply chains is in large part due to enterprises focusing on their core competencies and competitive advantages. The focus may be on innovation and product strategy, marketing, and the highest value added segments of manufacturing and services, therefore reducing the direct ownership over "non-core" tasks such as ancillary services and volume production.

45. Outsourcing refers to service or manufacturing activities that are contracted out to unrelated firms located either in the home country or abroad and is generally meant to be applicable to those activities that were once internal firm functions. In the case of factoryless goods production, the term outsourcing may be used more broadly to refer to activities that are contracted out but were never part of internal firm functions. Offshoring originally referred to service or manufacturing activities within the supply chain that are carried out by affiliates located in foreign countries. However, offshoring is now commonly used more broadly to refer to activities done abroad through both foreign affiliates and independent contractors. The provision of service or manufacturing activities by a domestic firm to a firm abroad is known as inshoring.[4]

46. Enterprises are continually evaluating which tasks to perform in-house, which tasks to outsource, and if and where offshoring may be advantageous. Whether an enterprise chooses an affiliated or independent firm is partly determined by the nature and maturity of the product. If the product is new and embodies substantial intellectual property, enterprises may be less likely to offshore tasks, or to hand over tasks to unaffiliated companies. This may be due to the risk that intermediate goods may not be made to exact specifications, but may also reflect concerns about enforcement of contractors or property rights abroad.[5] Once a product is more standardized, firms are more likely both to offshore tasks and to do so using independent contractors.

47. Gereffi et al. (2005) formalize this in three dimensions that help understand how production arrangements are organized and which tasks are likely to be performed in-house

[4] U.S. International Trade Commission "Economic Effects of U.S. Import Restraints, Special Topic: Global Supply Chains," August 2011.

[5] U.S. International Trade Commission

and which tasks are likely to be outsourced.[6] These include the complexity of information and knowledge required for the transactions (product and process specifications), the degree to which this complexity can be mitigated through codification and the extent to which suppliers have the necessary capabilities to meet the buyers' requirements.

48. Depending on the exact scores on these dimensions, different types of business relationships may arise among the participants in the value chain. These go beyond the traditionally distinguished 'market' (i.e. arm's length transactions) and 'hierarchy' (i.e., direct ownership) (Williamson, 1975),[7] and may involve a wide variety of governance types ranging from the lead enterprise exerting little control over the production process to the lead enterprise exerting (nearly) full control.

49. An important example of such a governance type category is Captive Production. In this situation an unaffiliated contract manufacturer is engaged by a single principal and is entirely dependent on this relationship to obtain work for his plant or plants. In such scenarios, control exerted by a principal on a captive unaffiliated contract manufacturer can be practically the same as the control exerted by the MNE parent on its affiliate in a direct investment relationship, which means that the difference between an affiliate and an unaffiliated contract manufacturer can be very unclear.

F. Summary

50. This is a brief introduction into global supply chains, global value chains and global production chains, and the introduction of the general features of global production arrangements. Chapter 2 of the Guide continues with the presentation of a typology of different global production arrangements. The typology provides an indication of the amount of coordination and control within a production arrangement and helps to understand the kinds of transactions taking place within the scope of global production. Many of the specific characteristics highlighted in this typology and the accompanying worked out examples are in subsequent chapters discussed in greater detail. As such, the typology discussion in Chapter 2 could be used as a roadmap that may guide readers to issues of specific interest as presented in the subsequent chapters of the Guide.

II. Conclusions and recommendations for future work

A. Introduction

51. This section provides the conclusions and recommendations for future work of the "Guide to measuring global production. Each chapter in the Guide finalizes with a list of conclusions. This chapter brings the most important conclusions together, summarizes the main findings of the Task Force and provides guidance for future work.

[6] Gereffi, G., J. Humphrey & T. Sturgeon (2005) "The governance of global value chains", *Review of International Political Economy*, 12:1.

[7] Williamson, O. (1975) *Markets and Hierarchies. Analysis and Antitrust Implications*, New York: Free Press.

B. Key recommendations

1. Recommendation-1 (R-1): A typology of global production arrangements

52. Chapter 2 of the Guide provides a typology of global production arrangements. The main purpose of this typology is to enhance international comparability by helping national accountants and balance of payments compilers to determine:

(a) The roles of the various actors in a global value chain;

(b) Who are the economic owners of input, outputs and assets along the production chain;

(c) The nature of transactions taking place inside the global value chain.

53. It is advised to keep the typology up to date with newly emerging global production arrangements and to test the usefulness of the existing typology on the basis of new case studies.

54. The typology for arrangements involving the manufacturing of goods is comprehensively developed. However, global production has also entered the domain of services. The Task Force's discussion on 'merchanting of services', as reflected in Chapter 10, shows that further research in this area is needed, exploring in more detail the business models followed by so-called international service arrangers. Examination of new cases is recommended as future work. At this point of time, the obtained evidence on the international value chains of services was too limited to develop further guidance.

2. (R-2) Refining the industrial classification of the so-called 'factoryless goods producers' and clarifying the nature of their output (goods instead of trade services)

55. FGPs are producers that outsource their manufacturing activities but own the underlying intellectual property products (IPPs) and control the outcome of the production process. A strict interpretation of the International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4 means that a FGP should be classified as a distributor if the FGP does not provide (and own) the material inputs subject to transformation, even though the FGP provides the technical specifications of the output and owns and supplies other critical inputs such as the IPPs used in production.

56. The opinion of the Task Force is that ownership of material inputs should not be the sole determining factor in classifying an FGP. An FGP that controls the outcome of the production process and provides (owns) either the IPP inputs or other inputs (goods and services) to a contractor should be classified to manufacturing as a separate and new subset of existing classifications that highlights the factoryless characteristic of the firm. The precise representation of factoryless goods producers in the ISIC hierarchy is an issue for further consideration of the classification experts.

57. The Task Force explored the borderline between FGPs and distributors by providing further guidance on how to examine the significance of IPPs in the production activities of such firms.

58. These findings of the Task Force were discussed in May 2013 by the Advisory Expert Group on National Accounts. Their conclusions and recommendations were in line with those of the Task Force as reflected above.

59. Open issues are the nature of the transaction between the FGP and the contractor and the precise scope of FGP activities. These issues will be further examined by the Task Force in the course of 2014.

3. (R-3) Economic ownership: theory and practice

60. The 2008 SNA recommends that imports and exports should be recorded on a strict change of ownership basis (2008 SNA, A3.155). The recommended recording in 2008 SNA and BPM6 of manufacturing services on physical inputs owned by others (i.e., goods for processing) and merchanting are brought in agreement with this general principle. This new guidance leads to better coherence of the national accounts and balance of payments.

61. However, a strict recording of international transactions on a transfer of ownership basis can be challenging in the following cases:

(a) MNEs may set up their geographical structure using legal entities such as special purpose entities (SPEs) which allows them to maximize profits after taxation. The parent may assign legal ownership of IPPs to such SPEs which otherwise do not contribute to the MNE's production activities. National accountants will not easily be able to walk around such legal arrangements. Usually they will be forced to follow reported earnings on IPP investment, despite the fact that these SPEs may not be considered as the economic owners according to the 2008 SNA principles. The Task Force recommends explicitly identifying these "artificial" IPP services in the national accounts or balance of payments, for example by presenting them in supplementary tables, to inform users about the significance of these flows. The precise design of such supplementary tables is a topic for future research;

(b) Even without the existence of SPEs, the principles of economic ownership of IPPs are sometimes difficult to apply inside MNEs. Inside MNEs, the creation of IPPs, their legal ownership and their economic use in production may involve different entities that are resident in a broad range of countries. This seriously complicates the recording of IPP related trade flows. The decision tree introduced in Chapter 4 provides guidance in properly linking IPP use to the individual economic activities inside global value chains. However, ultimately the information required to make solid judgements may still be difficult to obtain;

(c) Recording the output of multiterritory enterprises, or similar enterprises such as construction companies carrying out large projects abroad, on a country-by-country basis may require the creation of notional units and prorating of transactions and asset ownership. As such, applying the principles of economic ownership in the context of multiterritory enterprises may be challenging. Practical guidance is given in Chapter 8 where it is advised to carry out prorating as a concerted exercise of all the NSIs involved. Also it is advised to continue the exchange of experiences with recording the activities of multiterritory enterprises on an on-going basis.

4. (R-4) Measuring global production requires data that at present cannot always be obtained from existing surveys or registers

62. Chapter 5 of the Guide discusses the changing accounting conventions between the 1993 and 2008 versions of the SNA, and differences between the fifth and sixth versions of the BPM, with respect to recording processing of goods owned by others, merchanting and FGPs. While the changes in concepts may be well understood, the required modifications in data collection are not always straightforward.

63. Compared to the 2008 SNA and BPM6, the International Merchandise Trade Statistics (IMTS 2010) have a different conceptual basis, i.e. the cross border recording of imports and exports of goods. Reconciling IMTS statistics with the imports and exports as recorded in the national accounts and the balance of payment requires several steps which are discussed in Chapter 5 for inward and outward processing, merchanting and factoryless goods production, highlighting the data requirements for each of these steps. Depending on circumstances in individual countries, these data requirements may not be readily available

and adjustments in data collection are recommended. More specifically, these additional data needs relate to:

(a) Identifying import and export of goods in IMTS statistics which are not subject to transfer of economic ownership (goods sent abroad for processing or repair) and which should not be recorded as imports and exports in the national accounts or balance of payments;

(b) Identifying purchases and sales of goods abroad which need to be recorded as imports and exports in the national accounts and balance of payments, but which remain unobserved in IMTS statistics, as these goods do not physically cross the borders of the domestic economic territory;

(c) The design of business surveys should be such that the principle of ownership, and not that of territory, is used as a key concept in questions on inventories held by the surveyed unit. Changes in inventories of goods held abroad need to be recorded in supply and use tables. Similarly inventories held abroad need to be recorded in the national balance sheets. The explicit recording of inventories held abroad (apart from domestically held inventories) is also recommended for measuring trade margins correctly (excluding holding gains or losses);

(d) The data collection on the international trade in services is in many countries challenging. It is advised to explicitly address the reporting of intra-group services in international trade in services surveys, depending of course on the relative size of MNE activities and related output or consumption of intra-group services. One may ask respondents of MNE affiliated companies to report on payments as contributions from affiliated enterprises for management services, which are not reported under any other heading. The refined classification as presented in MSITS 2010 provides a solid point of departure. The funding questions in the R&D survey are considered a second best alternative to obtain information on R&D related international trade flows

64. In many countries a sound coverage of the items (a)-(d) requires expanding the scope of existing surveys. Aspects of global production may be difficult to measure with existing sets of source statistics, or may even remain unobserved altogether (e.g. transactions in goods under merchanting, inventories held abroad). Yet, many SNIs are facing strong constraints in this regard. The optimal use of existing data may be the only feasible way forward. One important step in this direction is data validation by bringing together, and reconciling, the results from business surveys, merchandise trade statistics and the international trade in services statistics, preferably on the basis of an integrated business register. It is also recommended to utilize existing customs data or information from the tax authorities to the fullest extent.

5. (R-5) Measuring global production requires new methods to compile economic statistics.

65. With the help of a questionnaire, the Task Force collected information on several operational aspects of so-called 'large and complex cases units' (LCUs) as they were set up in recent years by several NSIs. These LCUs can be successful in collecting and compiling data on the largest and most complex MNEs in a consistent and effective way. Typical LCU activities include integrated data collection (including register data), integrated data compilation and data consistency analysis. In the context of further improving the performance of LCUs, the Task Force recommends developing sufficient cooperation mechanisms and collaboration among producers of statistics, both nationally and internationally.

66. Issues around global production may oblige NSI's to combine efforts in completing their views on MNEs and global production and international trade more generally. Ways of international cooperation and coordination have not been examined in detail by the TF, however, the following areas of further development were identified:

(a) The development of common international business registers for the most complex MNEs (such as the Euro Groups Register) will assist in assigning the economic activities of the enterprises on a country-by-country basis in a mutually consistent way. Such registers may become the platform supporting the production of micro based statistics on globalisation and may assist in identifying the economic relationships and transactions taking place between the various member units of an MNE. The UNECE Task Force on statistical business registers has the objective to produce a set of international guidelines and recommendations of good practices, targeting both developed and less developed statistical systems. Aspects of global production may be brought into the work program of this Task Force;

(b) Improving the recording of intra-company services flows of MNEs in international trade in services statistics could be a joint effort by NSIs. The IPP ownership decision tree presented in Chapter 4 shows that the producers of IPPs are much easier to identify than the users. When the producing and consuming units of intra-company services are not situated in the same country, the observation and recording of these international flows of intra-company services should preferably be coordinated between the NSIs, at least for the largest MNEs, in order to avoid asymmetries in trade statistics.

(c) A clear response from compilers in reaction to previous consultations of the TF's work is the request for establishing a permanent forum where country experts could share information and experiences on measurement issues related to global production arrangements. The expectation is that globalization will continue to lead to new global production related issues that have not been examined so far. Such a forum could support stocktaking of new cases, identifying best practices and further harmonization of accounting practices.

6. (R-6) Price and volume measurement

67. One of the key outcomes of national accounting is economic growth, i.e. the volume growth of GDP. The national accounts also provide a range of other changes in aggregates in volume terms such as output, (intermediate) consumption, capital formation, imports and exports. In the national accounts changes in all these variables are systematically decomposed in a price and volume change component. Price and volume measurement in the light of globalisation is not an issue examined by the TF, although it is acknowledged that this can be challenging. It is recommended that the international guidelines for measuring prices (and volumes) should be adapted to some of the key characteristics of the output of global producers.

68. Inevitably this will require the engagement of price statisticians. Representative producer prices indices (PPIs) as laid down in the Producer Price Index Manual 2004 (PPIM 2004) are essential in this context. The representativeness of price indices is determined by their coverage in terms of product features and geographic boundaries. According to PPIM 2004 (1.177) a PPI could cover all output (domestic and exports), or be limited to domestic output only, depending on representativeness.

69. Global production may bring about (imports and exports of) goods and services which may have different characteristics than those typically produced for the domestic market. The following list of goods and services could be used as guidance for a future research agenda on price and volume measurement in the context of global production:

(a) Industrial processing services;

(b) The output of contract producers in a FGP arrangement;

(c) Trade services in connection to merchanting;

(d) Head office services;

(e) Other intra-company services;

(f) IPP related services (specifically R&D);

(g) Inventories held abroad.

7. (R-7) Analysing trade in value added amplifies the need of high quality statistics on global production

70. One key requirement of carrying out the input-output analyses for measuring trade in value added is reconciling trade statistics with input-output tables at the bilateral level. Key in this process is avoiding (or otherwise eliminating) asymmetries in trade statistics. In addition, the analysis of global value chains requires that national statistics build in a global dimension from the outset by developing aggregations, not only on the basis of their industrial classification, but also on the basis of their business function, for example by showing sub-groupings of processors, FGPs, foreign owned firms et(c) separately. Doing so would allow countries to construct supply-use tables, broken down by these new groupings, that would have a higher degree of homogeneity, certainly compared to aggregations which focus only the industrial classification of firms, where, and as this Guide illustrates, there exists considerable heterogeneity. This supplementary classification, which is expected to help identifying the business functions along the global value chain, is an issue for future research.

C. Organisation of future work

71. As addressed in the Guide, as a follow up of the Task Force's work, it is recommended to set up an information exchange platform for the stocktaking of complex cases, identifying best practices and further harmonization of accounting practices. Part of this work will also encompass testing and further refining or expanding the typology of global production arrangements presented in Chapter 2 based on the examination of new case studies.

72. Similarly, continued research in the domain on trade in value added is expected to expand our knowledge on global production, particularly with the help of the proposed classification of business functions that needs to be developed.

73. The proposed platform could also be used for:

(a) The exchange of practical experience on data collection, compilation methods, organizational issues and the involvement and operation of LCUs;

(b) International data confrontations;

(c) Improving in cooperation with price statisticians the price and volume measurement of the characteristic transactions inside global production arrangements.

74. The platform could take the form of face-to-face meetings but may also include a (protected) website for the collection and dissemination of case studies and new methodology.